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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,806	11/28/2001	Atsufumi Shibayama	067238-0115	3188

22428 7590 08/04/2004
FOLEY AND LARDNER
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER

KIM, KENNETH S

ART UNIT PAPER NUMBER

2111

DATE MAILED: 08/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/994,806

Applicant(s)

SHIBAYAMA ET AL.

Examiner

Kenneth S KIM

Art Unit

2111

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

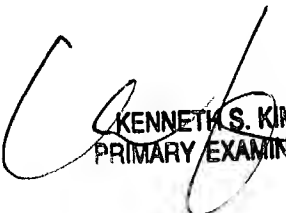
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-85 is/are pending in the application.
- 4a) Of the above claim(s) 37-48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 and 49-85 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.


KENNETH S. KIM
PRIMARY EXAMINER

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/18/02, 8/6/02, and 3/3/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

1. Claims 1-36 and 49-85 have been elected for examination and Claims 37-48 remain withdrawn.

2 The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-36 and 49-85 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a) Claims 1, 12, 25, 49, 60, and 73, the wherein clause is conclusory and it is not clear what or how the possibility of presence of dependence is detected when present in fact and detect dependence when not in fact.

(b) Claims 1, 12, 25, 49, 60, and 73, it is not clear what is meant by "allow to detect said dependence when not present in fact", since there is no dependence to detect.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-36 and 49-85 are rejected under 35 U.S.C. 102(b) as being anticipated by Kiyohara et al, U.S. Patent No. 5, 694,577.

Kiyohara et al teaches the invention as claimed in claim 1 including a detector for detecting at least one kind of dependence in address between instructions executed by at least a processor, said detector being adopted to detect a possibility of presence of said at least one kind of dependence,

(a) wherein if said at least one kind of dependence is present in fact, then said detector detects a possibility of presence of said at least one kind of dependence (col. 5, line 19), and if said at least one kind of dependence is not present in fact, then said detector is allowed to detect said at least one kind of dependence (conflict bit not set), and

further teaches as in claims 2-11,

(b) wherein said instruction comprises a memory access instruction for access to a memory (load and store) – claims 2 and 5,

(c) an execution history storing unit (MCB array 1; col. 4, line 10) including a plurality of entry which stores an instruction execution information of whether said memory access instruction has been executed (col. 4, line 14); and an address converter (3; col. 4, line 34) for converting an address of said memory access instruction into an entry number of said entry of said execution history storing unit, so that said execution history storing unit stores said instruction execution information into said entry designated by said entry number (col. 4, line 54) – claim 3,

(d) wherein said address converter is adopted to convert a same address of different memory access instructions into a same entry number for allowing that the same address for said different memory access instructions is stored in the same entry (col. 4, line 61), whereby if said at least one kind of dependence is not present in fact, then said detector is adopted to detect said at least one kind of dependence (col. 4, line 62) – claim 4,

(e) said one kind of said dependence is a read after write dependence, write after read dependence, or write after write dependence (examples of dependences) – claims 6-9,

(f) wherein said address converter is adopted to select plural bits of said address (col. 5, line 66) or to take XOR of said selected plural bits (col. 6, line 22) as indicating said entry number – claims 10 and 11.

The detector in multiprocessor multi-thread parallel processing system claims 12-24 for detecting inter-processor thread instructions dependency, the detector in multiprocessor multi-thread parallel processing system claims 25-36 for detecting inter-processor thread instructions dependency as well as intra processor thread instructions dependency, and the semiconductor integrated circuit claims 49-85, of which claims 49-59 incorporates the detector of claims 1-11 and claims 60-72 incorporates the detector claims of 12-24 and claims 73-85 incorporates the detector claims of 25-36 respectively, are all equivalently rejected based on the same reason.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mallick et al taught a method of aliasing address to entry number to avoid false dependency detection.

Arora et al taught a method of using execution history storing unit for dependency detection (ALAT).

Moshovos et al taught a method of using an execution history storing unit for dependency linking.

Call et al taught a method of detecting dependency comparing address component identifiers.


Shiell et al taught a method of detecting instruction dependencies in multi-stream processor.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth S KIM whose telephone number is (703) 305-9693. The examiner can normally be reached on M-F (8:30-17:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on (703) 305-4815. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

July 29, 2004



KENNETH S. KIM
PRIMARY EXAMINER